UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,159	03/01/2004	Giuseppe De Fabbrizio	2002-0355	9973

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/790,159	DE FABBRIZIO ET AL.
	Examiner	**Art Unit**	
	David Kovacek	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-6 and 12-20_ is/are rejected.

7) ☒ Claim(s) _7-10_ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _01 March 2004_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   The applicant has provided an amendment to the application which corrects minor informalities in the specification and claims and adds an additional limitation to each of **claims 1** and **13**. The applicant further provides remarks regarding the patentability of the amended claims with respect to the previous rejections as cited in the previous Office Action.

2.   The amendments to the specification with regard to the specified informalities cited in the previous Office Action have been considered and are accepted. The previous objection to the specification has been withdrawn.

3.   The amendments to the claims with regard to the specified informalities cited in the previous Office Action have been considered and are accepted. The previous objections to the claims have been withdrawn. However, new objections have been made with regard to minor informalities in the claims, and are detailed in the appropriate sections of this Office Action.

4.   Applicant's arguments with respect to the finite state model, added to **claims 1** and **13** have been considered but are moot in view of the new ground(s) of rejection, based on this amendment. Arguments presented in the

Remarks, submitted 10/31/2007, regarding the previously existing limitations are

addressed in this section.

Regarding the limitation of, "testing and deploying the spoken

dialog service using the selected top level flow

controller, selected reusable subdialogs and developed

subdialogs, wherein the top level flow controller, reusable

subdialogs and developed subdialogs interact independent of

their decision model" (referred to as Limitation A) of **claim 1**, this

limitation seems intended to be directed to an automated or real-time method of

generating a dialog manager, which is not claimed. The broadest reasonable

interpretation of the claim includes a manual, and/or deliberate non-real-time

method of generating a dialog manager. This interpretation has been considered

during examination, and is discussed further as appropriate in other sections of

this Office Action.

Furthermore, the examiner maintains that the limitation of "deploying"

the dialog manager as claimed in Limitation A is in fact inherent to a method of

generation of any inventive apparatus, as stated in the previous Office Action. A

process or method used to generate a dialog manager with the intention of never

deploying is in effect the creating of a device without purposeful usage and, by

extension, a lack of utility for said process or method.

Still regarding the limitation of "the top level flow controller,

reusable subdialogs and developed subdialogs interact

independent of their decision mode" in Limitation A, it is noted by the

examiner that the broadest reasonable interpretation of this limitation includes

the condition where the various components of the dialog manager are operable

to interact autonomously, or according to known rules. It is further noted by the

examiner that though the claim language requires that the various components of

the dialog manager are operable to "interact independent of their

decision model," the broadest reasonable interpretation of Limitation A does

not necessarily preclude interaction influenced also by said respective decision

models. These interpretations have been considered during examination.

Claim Objections

5.   Claim 13 is objected to because of the following informalities:

- The preamble should be amended to read, "A method of generating

  a dialog manager for use in a spoken [the] dialog

  service, the dialog manager supporting context shifts

  in a spoken dialog…"   For the purposes of examination, this

  suggested amendment has been additionally considered.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6.   The text of those sections of Title 35, U.S. Code not included in this action

can be found in a prior Office action.

7.   **Claims 13--20** are rejected under 35 U.S.C. 103(a) as being obvious in

view of US Patent 6,356,869 hereinafter referred to as Chapados.

Regarding **claim 13**, Chapados discloses a method of generating a dialog

manager for use in a spoken dialog service comprising:

- selecting a top level dialog flow controller [discourse

   management apparatus] that is a finite state model (Col. 2,

   lines 20-24);

- incorporating a context shift component [transition] (Col. 3,

   lines 19-29);

It is noted by the examiner that though a context shift component is not

explicitly disclosed by Chapados, this is inherent in a system that is capable

of making context-sensitive and context-insensitive transitions in operation of

a finite state machine as disclosed by Chapados.

- selecting available reusable subdialogs for being

   invoked by the top level flow controller, the

   reusable subdialogs [states] being isolated from

application dependencies (Col. 3, lines 19-22; Col. 8, lines 35-39,

lines 42-44; Col. 9, lines 15-21); and

It is noted by the examiner that though the limitation of "being

isolated from application dependencies" is not explicitly

disclosed by Chapados, it is implied in the condition where only permanent

transition rules are applied for state transitions in a finite state machine as is

disclosed by Chapados. This is because the permanent state transitions

rules are designed as part of the finite state machine system, and are

independent of both context and application of the system.

- testing and deploying the spoken dialog service using

  the selected top level flow controller and selected

  reusable subdialogs, wherein when a user of the

  system changes the context of the spoken dialog while

  in a reusable subdialog, the context shift component

  causes a parent dialog of the subdialog to be set to

  a state described by the context shift [wildcard

  transitions] (Col. 9, lines 39-44).

It is further noted that the limitation of deploying the spoken dialog service

using the various components is considered an inherent part of the

generation process as applied above in the Response to Amendments

section with regard to the similar limitation of **claim 1**.

Furthermore, the examiner contends that it would have been obvious for one of ordinary skill in the art at the time the invention was made to test any spoken dialog service before use as part of the generation process. This is because for the creation of any apparatus, testing is a known practice in ensuring repeatable and successful results in utilization.

Regarding **claim 14**, Chapados renders obvious all limitations of **claim 13** as applied above, and further implies that when a subdialog is invoked by a parent dialog, the context shift component causes the subdialog to inherit the context shifts of the parent dialog [directing the order in which the transitions are considered] (Col. 8, lines 39-41).

Regarding **claim 15**, Chapados renders obvious all limitations of **claim 14** as applied above, and further implies that when a user of the system changes the context of the spoken dialog while in a reusable subdialog, the context shift component further returns a message to the parent dialog that a context shift has occurred [context dependent state transition rules 416 depend on the context of the conversation] (Col. 8, lines 42-44).

Regarding **claim 16**, Chapados renders obvious all limitations of **claim 13**

as applied above, and further suggests operation wherein a context shift

[transition] is triggered by user input [context dependent

interpretation capability] and generates a state name where the

shift goes (Col. 2, lines 36-45; Col. 3, lines 19-29).

Though Chapados does not explicitly teach that a state name is generated

by the context-shift, this is inherent because a context shift, as in **claim 16**,

requires some method of discerning a destination state.

Regarding **claim 17**, Chapados renders obvious all limitations of **claim 13**

as applied above, and further implies the application dependencies

[context dependent state transition rules 416] are part of the top level

flow controller [accessible by components of the discourse manager]

(Col. 8, lines 49-55).

Regarding **claim 18**, Chapados renders obvious all limitations of **claim 17**

as applied above, and further discloses the top level flow controller

and subdialogs interact independent of their decision

models (Col. 3, lines 19-22; Col. 7, lines 51-53).

It is noted by the examiner that this is not explicitly taught by Chapados,

but is disclosed in teaching that interactions between states [remapping

transformation] is determined by the context of the prompts between the system and the user.

Regarding **claim 19**, Chapados renders obvious all limitations of **claim 13** as applied above, and further discloses support for chronological shifts in dialog [generating appropriate expectations for use in interpreting input] (Col. 6, lines 14-19).

Regarding **claim 20**, Chapados renders obvious all limitations of **claim 13** as applied above, and further implies support for digression in the dialog [temporary transitions to states that are dynamically created/removed as necessary] (Col. 3, lines 24-29).

8.   **Claims 1-6**, and **12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapados in view of Abella, cited in the previous Office Action.

Regarding **claim 1**, Chapados discloses a method for generating a dialog manager for a spoken dialog service, comprising:

- selecting a top level flow controller [discourse manager] that is a finite state model (Col. 2, lines 20-24);

- selecting available reusable subdialogs below the top level flow controller, the reusable subdialogs being isolated from application dependencies (Col. 3, line 19-22; Col. 8, lines 35-39, lines 42-44; Col. 9, lines 15-21);

- testing and deploying the spoken dialog service using the selected top level flow controller, selected reusable subdialogs and developed subdialogs, wherein the top level flow controller, reusable subdialogs and developed subdialogs interact independent of their decision model (Col. 3, lines 19-22).

It is noted by the examiner that "deploying the spoken dialog service" is an inherent part of the generation process of a spoken dialog service as applied above in the Response to the Amendments.

Furthermore, the examiner contends that it would be have been obvious for one of ordinary skill in the art at the time the invention was made to test any spoken dialog service before use as part of the generation process. This is because for the creation of any novel invention, testing is a known practice in ensuring repeatable and successful results in utilization.

However, though Chapados does imply "developing a subdialog for each application part not having an available subdialog" (Col. 3, lines 24-29) in disclosing the dynamic creation of

transitions, this does not necessarily require that the states connected by the transitions are created as necessary.

Abella does disclose the development of subdialogs [dialog motivators] for each part of a dialog manager not having them (Page 3, paragraph 0034). It is noted by the examiner that the broadest reasonable interpretation of "subdialog" would include any process, device, or mechanism that is part of a composite of a dialog system, such as the dialog motivators disclosed by Abella.

The two references are combinable because each is directed towards a speech dialog manager implemented with a modified finite state model. Abella provides motivation in disclosing the usefulness of a hierarchy of subdialogs [dialog motivators] in the decision model of a dialog manager in order to improve efficiency of the dialog manager during interaction with the user (Page 3, paragraph 0039-0040).

Therefore, the examiner contends that it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teachings of Chapados using the teachings of Abella in order to implement a dialog manager that utilizes a hierarchy of subdialogs in order to improve the system's efficiency during interaction with the user.

Regarding **claim 2**, Chapados in view of Abella discloses all limitations of **claim 1** as applied above, and Chapados further implies a subdialog that

includes a user's name in making reservations, using a telephone directory, or

utilizing various account numbers (Col. 1, lines 07-13; Col. 5, lines 02-09).

Further, it is noted by the examiner that Abella also discloses the use of

subdialogs that include information regarding personnel databases, which

include such information as names, telephone numbers, and other such contact

information (Page 4, paragraph 0042).

Regarding **claim 3**, Chapados in view of Abella discloses all limitations of

claim 2 as applied above, and Chapados further discloses the systems ability to

manage mixed-initiative conversations with a user (Abstract;

Col. 3, lines 63-67).

Regarding **claim 4**, Chapados in view of Abella discloses all limitations of

claim 1 as applied above, and Chapados further discloses that an available

reusable subdialog is an input subdialog (Col. 4, lines 14-29; Claim

1).

Regarding **claim 5**, Chapados in view of Abella discloses all limitations of

claim 4 as applied above, and Chapados further discloses that the available

reusable subdialog further comprises a confirmation

component (Fig. 4, element 408; Col. 4, lines 28-30, lines 32-37; Col. 11, lines

29-31).

Regarding **claim 6**, Chapados in view of Abella discloses all limitations of **claim 4** as applied above, and Abella further discloses an input subdialog that handles silence rejection, low confidence natural language understanding scores and explicit information from an input dialog with a user (Page 5, paragraphs 00-60-0065, paragraphs 0070-0073, paragraphs 0091-0095).

Because this disclosure is part of the full disclosure by Abella regarding the utility of a hierarchy of subdialogs, the references are combinable for the same reasons as cited regarding **claim 1**.

Regarding **claim 12**, Chapados in view of Abella discloses all limitations of **claim 1** as applied above, and Abella further discloses implementing a local context within a dialog data file [domain knowledge] associated with the dialog manager (Page 3, paragraph 0033).

Allowable Subject Matter

9.   **Claims 7-10** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claim 7**, Chapados in view of Abella discloses all limitations of **claim 1** as applied above, but does not further disclose the top level flow

controller is a recursive transition network (RTN) flow
controller.

The most appropriately applied prior art regarding the use of RTN networks in dialog management systems that was found during examination was Brown, cited in a previous Office Action, which describes the use of RTN networks for the purposes of constructing a grammar requiring a minimum amount of resources (Col. 7, lines 21-29, lines 35-39).

However, Brown fails to make use of the RTN network as a flow control in dialog management, and does not present any suggestion nor render obvious the usage of RTN networks for the purposes of control in a dialog management system.

Regarding **claims 8-10**, these claims are directly dependent upon the allowable **claim 7** and provide further limitation and are therefore also allowable for the same reasons.

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Sakoe (US Patent 4,326,101) teaches a system for recognizing word sequences using state transition models.

- Gorin (US Patent 6,941,266) teaches a method and system for predicting problematic dialog events in a task classification system.

- Young (US Patent Publication 2002/0193907) teaches a control system

  for a modular, mixed initiative, dialog management system.

11. Please note that though the examiner providing signatory authority for this

action has changed, the examination has been performed by the same examiner

throughout prosecution.

12. Applicant's amendment necessitated the new ground(s) of rejection

presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as

set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire

THREE MONTHS from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory

period, then the shortened statutory period will expire on the date the advisory

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Kovacek whose telephone number is (571) 270-3135. The examiner can normally be reached on M-F 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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DMK 12/06/2007